

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0058351

Owner: City of St. Charles
Address: 200 North Second Street, St. Charles, MO 63301

Continuing Authority: Same as above
Address: Same as above

Facility Name: St. Charles Missouri River Wastewater Treatment Facility
Address: 2500 North Main, St. Charles, MO 63301

Legal Description: NW ¼, Sec. 28, T47N, R5E, St. Charles County

Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P)(01604)
USGS Basin & Sub-watershed No.: (10300200-170001)

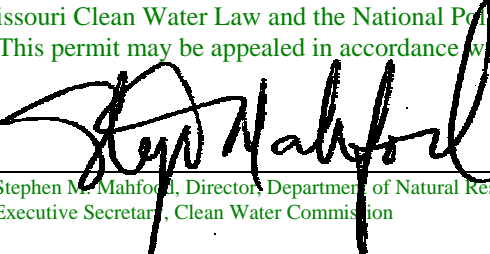
is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - POTW - SIC #4952
Three oxidation ditches/three interchannel clarifiers/secondary clarifier/sludge thickener/2.9 MG sludge storage lagoon.
Design population equivalent is 50,000.
Design flow is 5.0 MGD.
Actual flow is 3.4 MGD.
Design sludge production is 1,050 dry tons/year.
Actual sludge production is 550 dry tons/year.
Outfall #002 - Storm water - No Treatment
Design flow is 7.5 MGD.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

April 18, 2003 June 13, 2003
Effective Date Revised



Stephen M. Mahford, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

April 17, 2008

Expiration Date
MO 780-0041 (10-93)

Jim Hull, Director of Staff, Clean Water Commission

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅ **	mg/L		45	30	5 days/week***	24 hr. comp.
Total Suspended Solids**	mg/L		45	30	5 days/week***	24 hr. comp.
pH - Units	SU	****		****	5 days/week***	grab
Oil and Grease	mg/L	15		10	once/month	grab
Total Kjeldahl Nitrogen	mg/L	*		*	bimonthly (Note 5)	grab
Nitrate + nitrite as N	mg/L	*		*	bimonthly (Note 5)	grab
Ammonia as N	mg/L	*		*	bimonthly (Note 5)	grab
Temperature	mg/L	*		*	bimonthly (Note 5)	grab
Total Phosphorus	mg/L	*		*	bimonthly (Note 5)	grab
Water hardness	mg/L	*		*	bimonthly (Note 5)	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE July 28, 2003.

Arsenic (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Cadmium (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Chromium (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Copper (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Cyanide (Note 3)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Lead (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Mercury (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Nickel (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Silver (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.
Zinc (Note 1)	µg/L	*		*	once/quarter (Note 2)	24 hr. comp.

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year in June	24 hr. comp.
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MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2003. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 9	
					PERMIT NUMBER MO-0058351	
<p>The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:</p>						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 - Stormwater</u>						
Flow	MGD	*		*	once/quarter (Note 4)	grab
Biochemical Oxygen Demand ₅	mg/L	*		*	once/quarter (Note 4)	grab
Settleable Solids	mL/L/hr	1.5		1.0	once/quarter (Note 4)	grab
pH - Units	SU	****		****	once/quarter	grab
Oil and Grease	mg/L	15		10	once/quarter	grab
<p>MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u>; THE FIRST REPORT IS DUE <u>October 28, 2003</u>. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.</p>						
B. STANDARD CONDITIONS						
<p>IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u>, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.</p>						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** This facility is required to meet a removal efficiency of 85% or more.
- *** Effluent samples shall be collected five days in any given week with no more than two days in a row in any seven consecutive day period passing without effluent samples being taken.
- **** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 - Measured as total recoverable.

Note 2 - Sample once per quarter in the months of January, April, July, and October.

Note 3 - Measured as cyanide amenable to chlorination.

Note 4 - Sample once per quarter in the months of January, April, July & October. Sample shall be collected as a grab sample from the last manhole or other readily accessible location prior to the conveyance pipe to the discharge point. Sample shall be collected during a rainfall event which exceeds 0.1 inch.

Note 5 - Sample every two months in January, March, May, July, September & November.

C. SPECIAL CONDITIONS

1. All outfalls must be clearly marked in the field.
2. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.
3. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

4. This permit may be reopened and modified, or alternatively revoked and reissued, to:
- (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

5. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
- (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (e) There shall be no significant human health hazard from incidental contact with the water;
 - (f) There shall be no acute toxicity to livestock or wildlife watering;
 - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (continued)

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.
8. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
- (a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
 - (b) A summary of the status of Industrial User compliance over the reporting period;
 - (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
 - (d) Any other relevant information requested by the Department.
9. As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5 (c)(1).
10. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.
11. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	10%	Annually	24 hr. composite	June

a. Test Schedule and Follow-Up Requirements

- (1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

- (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
- (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity (WET) (continued)

a. Test Schedule and Follow-Up Requirements (continued)

- (2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.
- (5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.
- (6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
 - (a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
 - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

- (1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.
- (2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

C. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity (WET) (continued)

c. Test Conditions (continued)

- (3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).
- (4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.
- (5) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, $\frac{1}{2}$ AEC and $\frac{1}{4}$ AEC.
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

12. Requirements for Storm Water Outfall

These requirements do not supersede nor remove liability for compliance with county and other local ordinances.

1. Discharges shall not cause violations of the general criteria in the Water Quality Standards at 10 CSR 20-7.031(3) including, but not limited to the following criteria:
 - (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Water shall be free from oil, scum, and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Water shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses; and
 - (d) Waters shall be free from substances or conditions in sufficient amounts to have a harmful effect on human, animal, or aquatic life.
2. All paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to stormwater. Spill prevention, control and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any contaminant system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of

groundwater.

3. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.

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C. SPECIAL CONDITIONS (continued)

12. Requirements for Storm Water Outfall (continued)

4. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.
5. Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored or used for maintenance, cleaning or repair shall be managed accordingly to the provisions for RCRA or CERCLA.
6. An individual shall be designated by the permittee as responsible for environmental matters. Staff of the permitted facility shall inspect, on workdays, any structures that function to prevent pollution of storm water or to improve pollutants from storm water and of the facility in general to ensure that any Best Management Practices are continually implemented and effective.
7. All involved personnel shall be trained in material handling and storage, and housekeeping of maintenance area. Upon request, proof of training shall be submitted to the Department.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls